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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/017,402

12/14/2001

Michael R. Brickey

83448AEK

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7590

11/15/2005

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EXAMINER

WANG, GEORGE Y

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 11/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/017,402

Applicant(s)

BRICKEY ET AL.

Examiner

George Y. Wang

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-25 is/are pending in the application.
- 4a) Of the above claim(s) 23-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 1, 2005 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-4, 6-7, 11-14, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouderkirk et al. (U.S. Patent No. 5,825,543, hereinafter "Ouderkirk").

4. As to claim 1, Ouderkirk discloses a light diffuser (col. 15, line 40) comprising a thermoplastic layer (col. 32, lines 62-63) containing thermoplastic polymeric material and microvoids (col. 16, lines 51-55) and having a diffuse light transmission efficiency of at least 65% (col. 32, lines 39-41, 50-53) and a light transmission greater than 80% (col. 29, lines 8-9).

However, the reference fails to specifically disclose a microvoids having substantially circular cross-section in a plane perpendicular to the direction of light travel.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have microvoids having substantially circular cross-section in a

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plane perpendicular to the direction of light travel in the light diffuser device since one would be motivated to set the parameters and average dimensions of the voids by careful manipulation and stretch ratios through the use of selective compatibilizers to optimize the optical properties of the diffuser (col. 16, lines 52-62).

5. As per claim 2, Ouderkirk discloses the light diffuser as recited above where the different in refractive index between the thermoplastic polymeric material and the microvoids is greater than 0.2 (col. 2, lines 66-67; col. 3, lines 1-2).

6. Regarding claims 3-4 and 6, Ouderkirk discloses the light diffuser as recited above are formed by organic microspheres (col. 13, lines 12-14), are substantially free of scattering inorganic particles (col. 13, lines 21-22), and contain a gas (col. 16, lines 58-59).

7. As to claim 7, Ouderkirk discloses the light diffuser as recited above with thickness uniformity less than 0.10 micrometers (uniform skin layer, col. 15, lines 44-46).

8. Regarding claims 11-14, Ouderkirk discloses the light diffuser as recited above where the light transmission is greater than 87% (col. 29, lines 8-9) and where the microvoids have a major axis diameter to minor axis diameter ratio of 1.0 (col. 10, lines 41-43).

9. As per claims 19-20, Ouderkirk discloses the light diffuser as recited above where the thermoplastic layer comprises polyolefin polymer (col. 14, lines 10-14) and polyester polymer (col. 13, lines 21-22).

10. Claims 5, 15-18 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouderkirk in view of Aylward et al. (U.S. Patent No. 6,017,686, hereinafter "Aylward").

11. Regarding claims 5 and 21-22, Ouderkirk discloses the light diffuser as recited above, however, the reference fails to specifically disclose microvoids containing cross-linked polymer beads having a particle size between 0.30 and 1.7 micrometers.

Aylward discloses a light diffuser (col. 3, lines 28-30) with microvoids containing cross-linked polymer beads (col. 5, lines 5-10, 44-45) having a particle size between 0.30 and 1.7 micrometers (col. 4, lines 43-44).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have microvoids containing cross-linked polymer beads having a particle size between 0.30 and 1.7 micrometers since one would be motivated to provide a light diffuser with a recognized spectral transmission of at least 40% (col. 9, lines 17-18).

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12. As to claims 15-18, Ouderkirk discloses the light diffuser as recited above, however, the reference fails to specifically disclose microvoids having an average volume between 12 and 18 cubic micrometers over an area of 1 cm² and where the light diffuser has a thickness between 12.5 and 50 micrometers.

Aylward discloses a light diffuser (col. 3, lines 28-30) with microvoids having an average volume between 12 and 18 cubic micrometers over an area of 1 cm² (col. 4, lines 50-55) and where the light diffuser has a thickness between 12.5 and 50 micrometers (col. 4, lines 43-44).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have microvoids having an average volume between 12 and 18 cubic micrometers over an area of 1 cm² and where the light diffuser has a thickness between 12.5 and 50 micrometers since one would be motivated to provide a light diffuser with a recognized spectral transmission of at least 40% (col. 9, lines 17-18).

13. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ouderkirk in view of Wu et al. (U.S. Patent No. 5,346,954, hereinafter "Wu").

Ouderkirk discloses the light diffuser as recited above, however, the reference fails to specifically disclose the elastic modulus of the light diffuser being greater than 500 MPa.

Wu discloses a light diffuser (col. 1, line 54) with an elastic modulus that is greater than 500 MPa (col. 11, lines 65-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a light diffuser with an elastic modulus that is greater than 500 MPa since one would be motivated to provide a light diffuser that does not crystallize under performance (col. 11, lines 57-59), which ultimately preserves and optimizes diffusion functionality.

14. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ouderkirk in view of Yamamoto et al. (U.S. Patent No. 5,502,011, hereinafter "Yamamoto").

Ouderkirk discloses the light diffuser as recited above, however, the reference fails to specifically disclose the impact resistance of the light diffuser being greater than 0.6 Gpa.

Yamamoto discloses a light diffuser (col. 3, lines 28-30) with an impact resistance that is greater than 0.6 Gpa (col. 4, line 66).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a light diffuser with an impact resistance that is greater than 0.6 Gpa since one would be motivated to provide a ceramic having improved mechanical properties (col. 2, lines 64-65), which ultimately preserves and optimizes diffusion functionality.

Response to Arguments


15. Applicant's arguments with respect to claims 1-9 and 11-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 571-272-2304. The examiner can normally be reached on M-F, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


George Wang
Patent Examiner
AU 2871
November 14, 2005